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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/536,347	03/27/2000	Andrew D. Bailey III	LAM1P126/P0562	3591

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/536,347

Applicant(s)

BAILEY, ANDREW D.

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-7, 9-18 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-7, 9-16, and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 12, 14-16 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Dandl, U.S. Patent 5,370,765.

Dandl shows the invention as claimed including a plasma processing apparatus 10 for processing a substrate 56, comprising: a process chamber, comprising: a wall defining part of the process chamber; a device for igniting and sustaining within the plasma chamber a plasma for said processing; and a plasma confinement arrangement, comprising a magnetic array having a plurality of magnetic elements that are disposed within the processing chamber (62, for example), said plurality of magnets being configured to produce a magnetic field, and wherein the plurality of magnets are disposed around and extend along said plasma region and are within said plasma region (see fig. 1 and col. 7-line 54 to col. 13-line 32).

Regarding claim 12, note that the magnets are permanent magnets (see col. 13-lines 9-14). Concerning claims 14-16, note that the magnets can be moved or rotated and also note from Fig. 1 that the magnets are contained within sleeves (see col. 13-lines 20-32). With respect to claims 29, note that the plasma is able to fill the entire process chamber in which the magnetic elements are disposed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-7, 9-11, 13 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dandl, U.S. Patent 5,370,765.

Dandl is applied as above and further shows that the plurality of magnetic elements extend substantially from the substrate holder to the top of the chamber and are disposed around and outside the periphery of the substrate. Dandl does not expressly disclose that the substrate holder comprises a chuck, but the examiner takes official notice that chucks are well known in the art for securely holding a wafer to the substrate holder during processing.

Concerning claim 4, note that the magnetic field has an azimuthally symmetrical radial gradient (see col. 13-lines 1-8). With respect to claims 5-6, note that many of the magnetic elements of fig. 1 have a physical axis which extends along the plasma region and a magnetic axis which is perpendicular to the physical axis. Regarding claim 7, note that the magnets are permanent magnets (see col. 13-lines 9-14). Furthermore, concerning claims 9-11 and 13, note that the magnets can be moved or rotated and also note from Fig. 1 that the magnets are contained within sleeves (see col. 13-lines

Art Unit: 1763

20-32). With respect to claim 28, the magnetic field lines in Fig. 1 show a minimum magnetic field at the substrate.

Response to Arguments

Applicant's arguments filed 3/11/03 have been fully considered but they are not persuasive. Applicant argues that the magnet elements in Dandl do not extend along the plasma region since the application states that they are disposed along the plasma region. However, it is clear from the drawings in Dandl that the magnet elements in Dandl extend at least a finite length along the plasma region, thus reading on the broadest reasonable interpretation of the claim. There is no precise definition of "extend" present in the specification that would support applicant's assertion that Dandl does not show the magnetic elements extending along the plasma region. Furthermore, many of the magnet elements are within the plasma region, as defined by the processing chamber.

Regarding the dependent claims, note that the magnet elements are contained within sleeves partially consisting of bands 51 and also consisting of other structures which enclose the magnets (see fig. 2). Concerning the movement of the magnets so that the magnetic field is shifted over time and the citation at col. 13-lines 20-32, note that the magnets are a combination of the bands 51 and the permanent magnets and the bands can be moved so as to shift the magnetic field. With respect to the magnets being disposed in the chamber that is filled with plasma, note that the plasma source in

reference number 10 in figure 1 and the magnets are disposed within the plasma source.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1763

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

A handwritten signature in black ink, appearing to read "Alejandro", written in a cursive style.

Luz L. Alejandro
Patent Examiner
Art Unit 1763

May 21, 2003